

**REMARKS****INTRODUCTION:**

In accordance with the foregoing, claim 1 has been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-13 are under consideration. Claims 14-36 are withdrawn. Reconsideration is respectfully requested.

**CLAIM OBJECTION:**

In the Office Action, at page 2, numbered paragraph 2, claim 1 was objected to because of a typographical error in the recitation “a dust collecting pat.

Claim 1 has been amended to change “pat” to recite ---part---.

Hence, claim 1 is now submitted to be in correct form.

**REJECTION UNDER 35 U.S.C. §112:**

In the Office Action, at page 3, numbered paragraph 4, claims 1-13 were rejected under 35 U.S.C. §112, first paragraph, for the reasons set forth therein. This rejection is traversed and reconsideration is requested.

Independent claim 1 has been amended for clarity. The amendment is based, for example, on paragraphs [0006] and [0017]-[0018] of the specification.

Hence, amended independent claim 1 recites, in part: “a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified.”

Thus, it is respectfully submitted that the specification reasonably provides enablement for an air purifier with a functional filter comprising a specific material confined in micropores of carbon nanotubes as well as providing enablement for an air purifier with other functional filters, and is in proper form under 35 U.S.C. §112, first paragraph. Hence, amended claim 1 is enabled by the specification. Since amended claim 1 is enabled by the specification for an air purifier with a functional filter comprising a specific material (confined in micropores of carbon nanotubes) as well as an air purifier with other functional filters, and is in proper form under 35 U.S.C. §112, first paragraph, claims 2-13, which depend therefrom, are enabled for at least the reasons amended independent claim 1 is enabled for an air purifier with a functional filter comprising a specific material (confined in micropores of carbon nanotubes) as well as being enabled for an air purifier with other functional filters, and is in proper form under 35 U.S.C. §112, first paragraph.

**DOUBLE PATENTING:**

In the Office Action, at pages 4-5, claims 1 and 10-13 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 6 of USPN 7,074260 B2 by Lee et al. (hereafter, Lee) in view of Applicant's admission and JP 2001-079444 A (hereafter, JP '444).

Independent claim 1 has been amended to as recited above.

Generally, it should be noted that the use of carbon nanotubes is rather new. Sumio Iijima discovered carbon nanotubes in 1991. He was making C<sub>60</sub> molecules with the carbon arc process. In the same soot as the C<sub>60</sub> molecules, he found carbon nanotubes. Since then, fabrication methods have been optimized to produce nanotubes in yields higher than 70 percent.

It is respectfully submitted that Lee teaches an air conditioner filter comprising a carbon nanotube, wherein nano-sized metal particles of at least one type of metal are deposited into the carbon nanotube. In contrast, the present invention (see amended independent claim 1), recites, in combination, a plurality of elements making up an air purifier: "An air purifier, comprising: a main body to suck and discharge air; a dust collecting part to collect dust particles; a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified; and a deodorizing filter to remove odors from air, wherein the dust collecting part, the functional filter and the deodorizing filter are received into the main body to remove the contaminants from the air sucked into the main body." It should be noted that, in the present invention, the functional filter enhances a purification function to predetermined contaminants in the air, is replaceable by a user in response to the change of contaminants to be purified, and has a purification function in combination with a deodorizing filter. It is respectfully submitted that the combination of elements in amended independent claim 1 of the present invention are not taught or suggested by Lee.

It is respectfully submitted that JP '444 teaches an air cleaner with ionization equipment and a repulsion plate for attracting odorous particles (see paragraph [0008] Means for Solving the Problem), arranging a charcoal filter behind a main filter to deodorize a smell (see paragraph [0005] Detailed Description) using a charcoal filter (see [0026] Embodiment of the Invention), and "stinking dust is adsorbed by the activated carbon contained in the dust collection odor removal filter" (see [0034] Embodiment of the Invention). However, JP '444 does not teach or suggest utilizing an air purifier with a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified, and hence teaches away from amended independent claim 1 of the present invention.

It is respectfully submitted that Applicants' "admission" in the "Background of the Invention" on page 1 of the specification simply notes that the conventional air purifier of FIG. 1 includes "a pre-filter 102, an ionizer 104, a electrostatic filter 106 and a final filter 108." A conventional air purifier does not teach or suggest an air purifier, comprising: a main body to suck and discharge air; a dust collecting part to collect dust particles; a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified; and a deodorizing filter to remove odors from air, wherein the dust collecting part, the functional filter and the deodorizing filter are received into the main body to remove the contaminants from the air sucked into the main body, as is recited in amended independent claim 1 of the present invention. Hence, the Background of the invention on page 1 of the specification does not teach or suggest amended claim 1 of the present invention. Hence, the Background of the Invention on page 1 of the specification teaches away from amended independent claim 1 of the present invention.

It is respectfully submitted that since the Background of the Invention on page 1 of the specification and JP '444 teach away from the present invention, the Background of the Invention on page 1 of the specification and JP '444 should not be combined with Lee for obviousness considerations.

Hence, it is respectfully submitted that amended independent claim 1 of the present invention is nonobvious and is patentable over claim 6 of USPN 7,074260 B2 by Lee et al. in view of Applicant's admission and JP 2001-079444 A, and it is requested that the nonstatutory obviousness-type double patenting rejection of claims 1 and 10-13 (which depend from claim 1 and incorporate the features of claim 1) with respect to claim 6 of USPN 7,074260 B2 by Lee et al. in view of Applicant's admission and JP 2001-079444 A be withdrawn.

#### **REJECTION UNDER 35 U.S.C. §103:**

A. In the Office Action, at page 5, numbered paragraph 7, claims 2-4 were rejected under 35 U.S.C. §103(a) as being unpatentable over claim 6 of '260 (hereafter, Lee) in view of Applicant's admission and JP '444 as applied to claims 1 and 10-13 above, and further in view of High (USPN 5,904,896; hereafter, High). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

Independent claim 1 has been amended as set forth above.

It is respectfully submitted that Lee teaches an air conditioner filter comprising a carbon nanotube, wherein nano-sized metal particles of at least one type of metal are deposited into the carbon nanotube. In contrast, the present invention (see amended independent claim 1), recites, in combination, a plurality of elements making up an air purifier: "An air purifier,

comprising: a main body to suck and discharge air; a dust collecting part to collect dust particles; a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified; and a deodorizing filter to remove odors from air, wherein the dust collecting part, the functional filter and the deodorizing filter are received into the main body to remove the contaminants from the air sucked into the main body." It should be noted that, in the present invention, the functional filter has a purification function in combination with a deodorizing filter. It is respectfully submitted that the combination of elements in amended independent claim 1 of the present invention are not taught or suggested by Lee.

It is respectfully submitted that Applicants' "admission" in the "Background of the Invention" on page 1 of the specification simply notes that the conventional air purifier of FIG. 1 includes "a pre-filter 102, an ionizer 104, a electrostatic filter 106 and a final filter 108." A conventional air purifier does not teach or suggest an air purifier, comprising: a main body to suck and discharge air; a dust collecting part to collect dust particles; a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable on a basis of types of contaminants to be purified; and a deodorizing filter to remove odors from air, wherein the dust collecting part, the functional filter and the deodorizing filter are received into the main body to remove the contaminants from the air sucked into the main body, wherein the functional filter comprises a functional material confined in micropores of carbon nanotubes, and has a purification function of contaminants corresponding to the functional material, as is recited in amended independent claim 1 of the present invention. Hence, the Background of the Invention on page 1 of the specification teaches away from amended independent claim 1 of the present invention.

It is respectfully submitted that JP '444 teaches an air cleaner with ionization equipment and a repulsion plate for attracting odorous particles (see paragraph [0008] Means for Solving the Problem), arranging a charcoal filter behind a main filter to deodorize a smell (see paragraph [0005] Detailed Description) using a charcoal filter (see [0026] Embodiment of the Invention), and "stinking dust is adsorbed by the activated carbon contained in the dust collection odor removal filter" (see [0034] Embodiment of the Invention). However, JP '444 does not teach or suggest an air purifier, comprising: a main body to suck and discharge air; a dust collecting part to collect dust particles; a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified; and a deodorizing filter to remove odors from air, wherein the dust collecting part, the functional filter and the deodorizing filter are received into the main body to remove the contaminants from the air sucked into the main body, as is recited in amended claim

1 of the present invention, and hence teaches away from amended independent claim 1 of the present invention.

High (FIGs. 2-4, col. 7, lines 40-50 and col. 5, lines 7-27) teaches a filter with a disposable or re-usable electrostatic type coarse particle impingement filter unit that may comprise nonwoven polyester or polypropylene filter media in removable filter units. High does not teach or suggest an air purifier, comprising: a main body to suck and discharge air; a dust collecting part to collect dust particles; a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified; and a deodorizing filter to remove odors from air, wherein the dust collecting part, the functional filter and the deodorizing filter are received into the main body to remove the contaminants from the air sucked into the main body, as is recited in amended claim 1 of the present invention. Hence, High teaches away from amended claim 1 of the present invention.

It is submitted that since the Background of the Invention on page 1 of the specification, JP '444 and High teach away from the present invention, the Background of the Invention on page 1 of the specification, JP '444 and High should not be combined with Lee for 103 considerations. In Ruiz and Foundation v. A.B. Chance Company, 69 USPQ2d 1690 (CAFC January 29, 2004), the court held:

In making the assessment of differences, section 103 specifically requires consideration of the claimed invention "as a whole." Inventions typically are new combinations of existing principles or features. Envil. Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 698 (Fed. Cir. 1983) (noting that "virtually all [inventions] are combinations of old elements."). The "as a whole" instruction in title 35 prevents evaluation of the invention part by part. Without this important requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious. This form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a new result – often the very definition of invention. (emphasis added)

Section 103 precludes this hindsight discounting of the value of new combinations by requiring assessment of the invention as a whole. This court has provided further assurance of an "as a whole" assessment of the invention under § 103 by requiring a showing that an artisan of ordinary skill in the art at the time of invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention, would select the various elements from the prior art and combine them in the claimed manner. In other words, the examiner or court must show some suggestion or motivation, before the invention itself, to make the new combination. See In re Rouffet, 149 F.3d 1350, 1355-56 (Fed. Cir. 1998). (emphasis added)

Further, the court has held:

"Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the

combination." ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). Although the suggestion to combine references may flow from the nature of the problem, see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), "[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness," (emphasis added) Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH, 139 F.3d 877, 880, 45 USPQ2d 1977, 1981 (Fed. Cir. 1998). Therefore, "[w]hen determining the patentability of a claimed invention which combines two known elements, 'the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" In re Beattie, 974 F.2d 1309, 1311-12, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992) (quoting Lindemann, 730 F.2d at 1462, 221 USPQ at 488). (emphasis added)

In this case, the Examiner appears to be using the present application as a blueprint, which is not permitted.

Thus, it is respectfully submitted that amended independent claim 1 of the present invention is patentable under 35 U.S.C. §103(a) over claim 6 of '260 in view of Applicant's admission and JP '444 as applied to claims 1 and 10-13 above, and further in view of High (USPN 5,904,896). Since claims 2-4 depend from amended independent claim 1, claims 2-4 are patentable under 35 U.S.C. §103(a) over claim 6 of '260 in view of Applicant's admission and JP '444 as applied to claims 1 and 10-13 above, and further in view of High (USPN 5,904,896) for at least the reasons amended independent claim 1 is patentable under 35 U.S.C. §103(a) over claim 6 of '260 in view of Applicant's admission and JP '444 as applied to claims 1 and 10-13 above, and further in view of High (USPN 5,904,896).

**B.** In the Office Action, at pages 5-6, numbered paragraph 8, claims 5-9 were rejected under 35 U.S.C. §103(a) as being unpatentable over claim 6 of '260 (hereafter, Lee) in view of Applicant's admission and JP '444 as applied to claims 1 and 10-13 above, and further in view of claims 1, 20, and 21 of USPN 7,029,520 B2 by Park et al. (hereafter, Park). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

Independent claim 1 has been amended as set forth above.

It is respectfully submitted that Lee teaches an air conditioner filter comprising a carbon nanotube, wherein nano-sized metal particles of at least one type of metal are deposited into the carbon nanotube. In contrast, the present invention (see amended independent claim 1), recites, in combination, a plurality of elements making up an air purifier: "An air purifier, comprising: a main body to suck and discharge air; a dust collecting part to collect dust particles; a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified; and a

deodorizing filter to remove odors from air, wherein the dust collecting part, the functional filter and the deodorizing filter are received into the main body to remove the contaminants from the air sucked into the main body." It should be noted that, in the present invention, the functional filter has a purification function in combination with a deodorizing filter. It is respectfully submitted that the combination of elements in amended independent claim 1 of the present invention are not taught or suggested by Lee.

It is respectfully submitted that Applicants' "admission" in the "Background of the Invention" on page 1 of the specification simply notes that the conventional air purifier of FIG. 1 includes "a pre-filter 102, an ionizer 104, a electrostatic filter 106 and a final filter 108." A conventional air purifier does not teach or suggest an air purifier, comprising: a main body to suck and discharge air; a dust collecting part to collect dust particles; a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified; and a deodorizing filter to remove odors from air, wherein the dust collecting part, the functional filter and the deodorizing filter are received into the main body to remove the contaminants from the air sucked into the main body, as is recited in amended independent claim 1 of the present invention. Hence, the Background of the Invention on page 1 of the specification teaches away from amended independent claim 1 of the present invention.

It is respectfully submitted that JP '444 teaches an air cleaner with ionization equipment and a repulsion plate for attracting odorous particles (see paragraph [0008] Means for Solving the Problem), arranging a charcoal filter behind a main filter to deodorize a smell (see paragraph [0005] Detailed Description) using a charcoal filter (see [0026] Embodiment of the Invention), and "stinking dust is adsorbed by the activated carbon contained in the dust collection odor removal filter" (see [0034] Embodiment of the Invention). However, JP '444 does not teach or suggest amended independent claim 1 of the present invention, and teaches away from amended independent claim 1 of the present invention.

Park teaches a dust collecting apparatus for an air conditioner, including an ionizer to electrically charge dust particles in air, and a metal filter having fine metal fibers, disposed at a predetermined distance from a back of the ionizer, the metal filter having a polarity opposite to that of the charged dust particles to electrically collect the dust particles (see Abstract, Park). Park does not teach or suggest an air purifier, comprising: a main body to suck and discharge air; a dust collecting part to collect dust particles; a functional filter to enhance a purification function to predetermined contaminants in the air and to be replaceable by a user in response to the change of contaminants to be purified; and a deodorizing filter to remove odors from air, wherein the dust collecting part, the functional filter and the deodorizing filter are received into the main body to remove the contaminants from the air sucked into the main body, as is recited

in amended independent claim 1 of the present invention. Hence, Park teaches away from amended claim 1 of the present invention.

As noted above, the Examiner appears to be using the present application as a blueprint, which is not permitted.

It is submitted that since the Background of the Invention on page 1 of the specification, JP '444 and Park teach away from the present invention, the Background of the Invention on page 1 of the specification, JP '444 and Park should not be combined with Lee for 103 considerations

Hence, it is respectfully submitted that amended independent claim 1 of the present invention is patentable under 35 U.S.C. §103(a) over claim 6 of '260 in view of Applicant's admission and JP '444 as applied to claims 1 and 10-13 above, and further in view of claims 1, 20, and 21 of USPN 7,029,520 B2 by Park et al. Since claims 5-9 depend from amended independent claim 1, claims 5-9 are submitted to be patentable under 35 U.S.C. §103(a) over claim 6 of '260 in view of Applicant's admission and JP '444 as applied to claims 1 and 10-13 above, and further in view of claims 1, 20, and 21 of USPN 7,029,520 B2 by Park et al. for at least the reasons amended independent claim 1 is patentable under 35 U.S.C. §103(a) over claim 6 of '260 in view of Applicant's admission and JP '444 as applied to claims 1 and 10-13 above, and further in view of claims 1, 20, and 21 of USPN 7,029,520 B2 by Park et al.

#### **CONCLUSION:**

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: June 21, 2007

By: Darleen J. Stockley  
Darleen J. Stockley  
Registration No. 34,257

1201 New York Avenue, N.W.  
Suite 700  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501